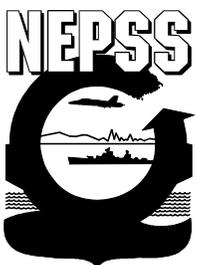




Marine Environmental Update



NOAA Releases CZMA Federal Consistency Regulations Final Rule

The National Oceanic and Atmospheric Administration (NOAA) has revised the regulations implementing the federal consistency provision of the Coastal Zone Management Act of 1972 (CZMA). The Coastal Zone Act Reauthorization Amendments of 1990 (CZARA), enacted November 5, 1990, as well as the Coastal Zone Protection Act of 1996, enacted June 3, 1996, amended and reauthorized the CZMA. Among the amendments were revisions to the federal consistency requirement contained in Section 307 of the CZMA. The following is a description of changes to the Coastal Zone Management Act and Coastal Zone Protection Act, section by section.

Subpart A – General Information:

Minor changes were made to clarify that the obligations imposed by the regulations are for State agencies as well as for Federal agencies and other parties, and to clarify that the purpose of the regulations is to address both the need to ensure consistency of federal actions affecting any coastal use or resource with the enforceable policies of management programs and the importance of federal programs. Changes were made to encourage State agencies and Federal agencies to coordinate as early as possible, and to

ALSO IN THIS ISSUE:

EPA Sets Water Quality Criteria For Methylmercury	3
EPA Publishes Ecoregional Nutrient Criteria	5
EPA Ambient WQC for DO (Saltwater) for Virginian Province.....	7
Effluent Limitation Guidelines For Centralized Waste Treatment.....	9
EPA Issues Biocriteria Guidance For Marine Waters.....	9
Regulatory Definition Of “Discharge Of Dredged Materials” Revised.....	10
Supreme Court Ruling Limits CWA Authority Over Isolated Wetlands.....	11
FWS Issues Southwestern Arroyo Toad Critical Habitat Final Rule.....	14
FWS Proposes To List The Dolly Varden As Threatened.....	16
Airborne Nitrogen Contributes Pollution To U.S. Estuaries	20
Southern CA Bight Regional Environmental Survey Reports	21
EPA Coastal Research and Monitoring Strategy	24
Evaluation of Sediment Transport Data for Clean Sediment TMDLs	27
Next Issue: ELISA Screening-Level Determination of PCBs in Seawater	29
About the <i>Marine Environmental Update</i>	29

Read me on-line at: meso.spawar.navy.mil/Newsltr



SPAWAR
Systems Center
San Diego

allow State agencies and Federal agencies to mutually agree to consistency procedures different from those contained in the regulations, providing that public participation requirements are still met and that all relevant management program enforceable policies are considered.

Subpart B – General Definitions:

The definitions have been redesignated to reduce the total number of regulation sections.

Subpart C – Consistency for Federal Agency Activities:

Throughout the regulations, the phrase “directly affecting the coastal zone” has been changed to read “affecting any coastal use or resource.” This codifies changes made to the CZMA by CZARA and includes reasonably foreseeable effects on any land or water use or natural resource of the coastal zone.

Subpart D – Consistency for Federal License or Permit Activities:

Sections 930.50 and 930.51(a) were amended to be consistent with the statutory language referring to “required” federal license or permit activities. A required federal approval means that the activity could not be performed without the approval or permission of the Federal agency. The approval does not have to be mandated by federal law; it only has to be a requirement to perform the activity.

Subpart E – Consistency for Outer Continental Shelf (OCS) Exploration, Development and Production Activities:

Section 930.75(b) was deleted as redundant with the changes to Section 930.76(b) and with Section 930.58.

Subpart F – Consistency for Federal Assistance to State and Local Governments

Section 930.94 was amended to clarify that all federal assistance activities that affect any coastal use or resource are subject to the consistency requirement. While the intergovernmental review process is the preferred method for notifying the State agency and for State agency review, the intergovernmental review process may not provide notification for all federal assistance activities subject to the consistency requirement. Sections 930.94(b) and 930.95 provide methods to ensure adequate notification and review, by specifying a listed and unlisted procedure.

Subpart G – Secretarial Mediation

Only minor changes were made to Subpart G. Subpart G provides a process for Federal agencies and coastal States to request that the Secretary of Commerce mediate serious disputes regarding the federal consistency requirements. Subpart G also provides for more informal mediation by Ocean and Coastal





SPAWAR
Systems Center
San Diego

Resource Management (OCRM). Both Secretarial mediation and OCRM mediation require the participation of both agencies and are non-binding.

Subpart H – Appeal to the Secretary for Review Related to the Objectives of the Act and National Security Interests

Pursuant to Section 307 of the Act, no Federal agency may issue a license or permit for an activity until an affected coastal State has concurred that the activity will be conducted in a manner consistent with the management program unless the Secretary, on his own initiative or on appeal by the applicant, finds that the activity is consistent with the objectives of the Act or is otherwise necessary in the interest of national security. Subpart H sets forth the procedures applicable to such appeals and the requirements for such findings by the Secretary.

Subpart I – Assistant Administrator Reporting and Review

The existing Subpart I was deleted. This subpart has never been used, and there are other existing CZMA mechanisms for reporting and review: oversight and monitoring under CZMA Section 306, evaluations under CZMA Section 312, appeals under CZMA Section 307, and unlisted activity review approvals.

Proposed Subpart I – Consistency of Federal Activities Having Interstate Coastal Effects

The CZARA clarified that the federal consistency trigger is coastal effects, regardless of the geographic location of the federal activity (see CZMA Section 307; Conference Report at 970–972). Thus, federal consistency applies to all relevant federal actions, even when they occur outside the State's coastal zone and in another State.

The full text of the rule, which became effective January 8, 2001, is available from MESO (410 KB Adobe™ Acrobat™ file).

Federal Register, Volume 65, Number 237, Friday, December 8, 2000, pp. 77124-77175.



EPA Sets Water Quality Criteria For Methylmercury

On January 8, 2001, the Environmental Protection Agency issued its water quality criteria for methylmercury; to be used by states in determining methyl mercury levels in fish tissue. The new methylmercury water quality criteria are based on a new risk assessment (a reference dose) that the EPA has developed in response to a recommendation by the National Academy of Sciences (see also *Marine Environmental Update*, Vol. FY99, No. 1). Both the new criteria and the new reference dose are based on updated scientific data on environmental fate and human health effects of methylmercury.



This is the first time the EPA has issued a water quality criterion expressed as a fish and shellfish tissue value rather than as a water column value. The Tissue Residual Criteria is 0.3 mg/kg fish tissue, meaning that 0.3 mg/kg is the concentration in fish tissue that should not be exceeded based on total fish and shellfish consumption- weighted rate of 0.0175 kg fish/day. On a site-specific or local level, States and authorized tribes can choose to apportion all of the 0.0174 kg fish/day to the highest trophic level consumed for their population, or modify it based on local or regional consumption patterns. The link between water quality criteria and fish tissue concentration is the bioaccumulation factor (BAF).

The EPA expects to publish specific guidance for deriving field-measured site-specific BAFs in late 2001. Until then, the recently published procedures in the 2000 Human Health Methodology for deriving BAFs can be used as a general guide. In addition, the Bioaccumulation Technical Support Document (TSD) for the 2000 Human Health Methodology, which is due to be published later in 2001, will provide additional information and guidance on deriving site-specific BAFs. It can also be correlated using bioaccumulation models. Lastly is the use of the EPA's empirically derived draft methylmercury BAFs, derived from the 2000 Human Health Methodology and from Appendix D of the Mercury Study. These values are based on the different trophic levels (see below).

	Trophic Level 2	Trophic Level 3	Trophic Level 4
BAF	160,000	680,000	2,700,000

To help States and authorized Tribes adopt the recommended water quality criteria for methyl mercury, the EPA plans to begin development of implementation procedures and a guidance document by the end of 2001. These will be part of a broad implementation policy for this water quality criteria. The EPA believes that five years is a reasonable time by which States and Tribes should take action to adopt new or revised water quality criteria necessary for the protection of the designated uses of their waters.

The complete text of the water quality criteria notice is available from MESO (199 KB Adobe™ Acrobat™ file). Further information may be found at: <http://www.epa.gov/ost/criteria/methylmercury>.

Federal Register, Volume 66, Number 5, Monday, January 8, 2001, pp. 1344-1359.



EPA Issues Correction To California Toxics Rule

On May 18, 2000, the Environmental Protection Agency published a final rule in the Federal Register titled *Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California* (also known as the California Toxics Rule). The California Toxics Rule promulgated numeric aquatic life and human health criteria for priority toxic pollutants and a compliance schedule provision which authorizes the State to issue schedules of compliance for new or revised National





SPAWAR
Systems Center
San Diego

Pollutant Discharge Elimination System permit limits based on the federal criteria when certain conditions are met (see *Marine Environmental Update*, Vol. FY00, No. 3).

That final rule contained typographical errors consisting of omission of units in the column headings to a table, inadvertent placement of a zero in one of the numeric criteria values, an oversight in the correct CAS number for a pollutant, and the incorrect placement of a parameter in a formula. On February 13, 2001, the EPA corrected those typographical errors. These corrections are all minor in nature and do not substantively alter the final rule.

Federal Register, Volume 66, Number 30, Tuesday, February 13, 2001, pp. 9960-9962.



EPA Publishes Ecoregional Nutrient Criteria

To assist states and tribes in setting regional-specific water quality criteria, the Environmental Protection Agency published national nutrient criteria for seventeen ecoregions across the country – criteria for eight ecoregions for lakes and reservoirs; eight ecoregions for rivers and streams; and one ecoregion for wetlands. These recommended criteria will be used to support the development of more localized, waterbody specific state and tribal nutrient criteria (see *Marine Environmental Update*, Vol. FY98, No. 4). States and tribes are expected to adopt or revise ecoregional nutrient criteria that are published in 2000 and 2001 into water quality standards by 2004. This is the first time the EPA has issued regional-specific nutrient criteria.

The intent of the EPA's recommended ecoregional nutrient criteria is to identify baseline conditions of surface waters that are minimally impacted by human activities and protect against the adverse effects of nutrient overenrichment from cultural eutrophication. Nutrient criteria are numerical values for both causative (phosphorus and nitrogen) and response (chlorophyll a and turbidity) variables associated with the prevention and assessment of eutrophic conditions. These recommended water quality criteria are suggested baselines that should be used by state and tribes to help identify problem areas, serve as a basis for state and tribal water quality criteria for nutrients, and evaluate relative success in reducing cultural eutrophication.

The EPA expects that states and tribes will use these seventeen ecoregional nutrient criteria as a starting point to identify more precise numeric levels for nutrients needed to protect aquatic life and recreational or other uses on a site-specific or subregion-specific basis. The EPA expects that more precise numerical levels will be developed on a smaller geographic scale than the ecoregional values presented in the nutrient water quality criteria documents. States and tribes may also develop criteria using other scientifically defensible methods and appropriate water quality data or simply adopt the EPA's recommended water quality criteria in their water quality standards in the absence of any better data. The EPA expects states and tribes to develop a plan for developing and adopting nutrient criteria into state or tribal water quality standards within one year of publication of these recommendations and to adopt or revise numeric nutrient criteria into state and tribal water quality standards by 2004.





SPAWAR
Systems Center
San Diego

The following tables show the recommended EPA criteria for each of the aggregate nutrient ecoregions for the primary parameters of concern.

Aggregate Ecoregion Nutrient Criteria for Rivers and Streams

Parameter	Ecoregion II	Ecoregion III	Ecoregion VI	Ecoregion VII	Ecoregion IX	Ecoregion XI	Ecoregion XII	Ecoregion XIV
Total Phosphorus (µg/L)	10	21.88	76.25	33.00	36.56	10.00	40.00	31.25
Total Nitrogen (µg/L)	0.12	0.377	2.18	0.54	0.692	0.305	0.90	0.71
Chlorophyll a (µg/L)	0.66	1.43	7.33	3.50	0.93	1.613	0.40	3.75
Turbidity (NTU)	1.30	1.84	9.89	1.70	7.02	2.300	1.90	1.94

Aggregate Ecoregion Nutrient Criteria for Lakes and Reservoirs

Parameter	Ecoregion II	Ecoregion III	Ecoregion VI	Ecoregion VII	Ecoregion IX	Ecoregion XI	Ecoregion XII	Ecoregion XIV
Total Phosphorus (µg/L)	8.75	37.5	14.75	8.00	20.00	8.00	10.00	17.50
Total Nitrogen (µg/L)	0.10	1.68	0.66	0.24	0.358	0.458	0.52	1.27
Chlorophyll a (µg/L)	1.90	8.59	5.23	2.39	5.18	2.79	2.60	3.35
Secchi (m)	4.50	1.36	3.33	4.93	1.53	2.86	2.10	0.79

Available Criteria Documents for Lakes & Reservoirs:

- *Ecoregion II – Western Forested Mountains* (EPA 822-B-00-007)
- *Ecoregion VI – Corn Belt And Northern Great Plains* (EPA 822-B-00-008)
- *Ecoregion VII – Mostly Glaciated Dairy Region* (EPA 822-B-00-009)





SPAWAR
Systems Center
San Diego

- *Ecoregion VIII – Nutrient Poor Largely Glaciated Upper Midwest and Northeast* (EPA 822-B-00-010)
- *Ecoregion IX – Southeastern Temperate Forested Plains and Hills* (EPA -822-B-00-011)
- *Ecoregion XI – The Central and Eastern Forested Uplands* (EPA 822-B-00-012)
- *Ecoregion XII – Southeastern Coastal Plain* (EPA 822-B-00-013)
- *Ecoregion XIII – Southern Florida Coastal Plain* (EPA 822-B-00-014)

Available Criteria Documents for Rivers & Streams:

- *Ecoregion II – Western Forested Mountains* (EPA 822-B-00-015)
- *Ecoregion III – Xeric West EPA* (EPA 822-B-00-016)
- *Ecoregion VI – Corn Belt And Northern Great Plains* (EPA 822-B-00-017)
- *Ecoregion VII – Mostly Glaciated Dairy Region* (EPA 822-B-00-018)
- *Ecoregion IX – Southeastern Temperate Forested Plains and Hills* (EPA -822-B-00-019)
- *Ecoregion XI – The Central and Eastern Forested Uplands* (EPA 822-B-00-020)
- *Ecoregion XII – Southeastern Coastal Plain* (EPA 822-B-00-021)
- *Ecoregion XIV – Eastern Coastal Plain* (EPA 822-B-00-022)

Available Criteria Documents for Wetlands:

- *Ecoregion XIII – Southern Florida Coastal Plain including all or parts of the State of: Florida and the authorized Tribes within the Ecoregion* (EPA 822-B-00-023)

The complete text of this notice is available from MESO (129 KB Adobe™ Acrobat™ file). The criteria documents may be found at <http://www.epa.gov/waterscience/criteria/nutrient/ecoregions/index.html> as downloadable Adobe™ Acrobat™ files.

Federal Register, Volume 66, Number 6, Tuesday, January 9, 2001, pp. 1671-1674.



EPA Releases Ambient WQC for DO (Saltwater) for Cape Cod to Cape Hatteras

On Thursday, November 30, 2000, the Environmental Protection Agency published its recommended national Clean Water Act (CWA) Section 304(a) criteria for dissolved oxygen (DO) in saltwater to protect aquatic life for coastal waters (waters within the territorial seas, defined as within three miles from shore under Section 502(8) of the CWA) of the Virginian Province (Cape Cod to Cape Hatteras; see *Marine Environmental Update*, Vol. FY00, No. 2). Under the CWA, States, Territories, and Tribes are to





SPAWAR
Systems Center
San Diego

adopt water quality criteria to protect designated uses. The EPA has promulgated regulations to implement this requirement at 40 CFR Part 141.

The EPA is recommending that States and authorized Tribes within the Virginian Province adopt numeric DO criteria for saltwater applicable at all times of the year for all marine waters designated for the protection of aquatic life or for waters whose existing uses include aquatic life. States and Tribes may adopt numeric criteria based on the EPA's ambient water quality criteria for DO, such criteria modified to reflect site-specific conditions, or other scientifically defensible methods (see 40 CFR 131.11(b)(1)). States and Tribes should adopt narrative criteria where numeric criteria cannot be established or to supplement numeric criteria (see 40 CFR 131.11(b)(2)).

Because the EPA has issued recommended Section 304(a) criteria for DO, numeric criteria for DO can be established. Numeric criteria for DO can be implemented in National Pollutant Discharge Elimination System (NPDES) permits by determining the need for and calculating specific limits for oxygen demanding wastes and nutrients that spur excess algal growth and subsequent decay of aquatic plants. Such criteria may also serve as a definitive benchmark for determining impairment of waters for Clean Water Act Section 303(d) listing purposes and then as a starting point for establishing Total Maximum Daily Loads (TMDLs), wasteload allocations for point sources, and load allocations for nonpoint sources.

The criteria do not address direct behavioral responses (*i.e.*, avoidance) or the ecological consequences of behavioral responses, such as increased or decreased predation rates or altered community structure, nor do they address the issue of spatial significance of a DO problem. In addition, as with all criteria, these criteria do not account for changes in sensitivity to low DO that accompany other stresses, such as high temperature, extremes of salinity, or toxicants. Chief among these concerns would be high temperature because high temperature and low DO often appear together.

The EPA anticipates providing the additional implementation guidance in late 2001. The EPA believes the approach used to develop the criteria can be applied, with minor modifications and regional specific data, to derive DO criteria for other coastal and estuarine regions of the United States. The EPA plans to prepare similar DO criteria for other provinces based on this approach.

The complete text of the final rule is available from MESO (134 KB Adobe™ Acrobat™ file). Further information may also be found at <http://www.epa.gov/waterscience/standards/dissolved>.

Federal Register, Volume 65, Number 231, Thursday, November 30, 2000, pp. 71317-71321.



Effluent Limitation Guidelines For Centralized Waste Treatment Point Source Category

On December 22, 2000, the Environmental Protection Agency published its final Clean Water Act effluent limitations guidelines and standards for wastewater discharges from the centralized waste treatment industry. This final regulation generally applies to wastewater discharges associated with the operation of new and existing centralized waste treatment facilities which accept hazardous or non-hazardous industrial wastes, wastewater, and/or used material from off-site for treatment of the wastes and/or recovery of materials from the wastes. This final rule also amends the EPA's *Guidelines Establishing Test Procedures for the Analysis of Pollutants* (40 CFR Part 136) to add 10 semivolatile organic pollutants to Method 625 and 6 semivolatile organic pollutants to Method 1625.

The EPA expects compliance with this regulation to reduce the discharge of conventional pollutants by at least 9.7 million pounds per year and toxic and non-conventional pollutants by at least 9.3 million pounds per year. The EPA estimates the annual cost of the rule will be \$35.1 million. The EPA estimates that the annual benefits of the rule will range from \$2.56 million to \$8.09 million.

The complete text of the final rule is available from MESO (540 KB Adobe™ Acrobat™ file). This regulation became effective on January 22, 2001. For further information, contact Ms. Jan Matuszko at (202) 260-9126 or Mr. Timothy Connor at (202) 260-3164.

Federal Register, Volume 65, Number 247, Friday, December 22, 2000, pp. 81241-81313.



EPA Issues Estuarine And Coastal Marine Waters Biocriteria Guidance Document

On January 9, 2001, the Environmental Protection Agency announced the availability of the *Estuarine and Coastal Marine Waters: Bioassessment and Biocriteria Technical Guidance* (see *Marine Environmental Update*, Vol. FY98, No. 4). This technical guidance provides an extensive collection of methods and protocols for conducting bioassessments in estuarine and coastal marine waters and the procedures for deriving biocriteria from the results. Case studies illustrate the bioassessment process and biocriteria derivation procedures.

The document outlines physical classification of estuaries and coastal marine waters, and discusses sampling methods and candidate metrics for four core groups of biological indicator assemblages: benthic macroinvertebrates, fish, aquatic macrophytes, and phytoplankton. Three sampling tiers are developed, increasing in sampling effort, precision, and diagnostic ability. Alternative data analysis methods are introduced for biological index development, and the document ends with eight case studies illustrating the implementation of the methods.





SPAWAR
Systems Center
San Diego

Many natural resource agencies throughout the United States are using bioassessments and biocriteria for small rivers and streams and are beginning work in lakes and reservoirs. The EPA issued guidance documents for these water bodies in 1996 and 1998, respectively, the *Biological Criteria: Technical Guidance for Streams and Small Rivers* (EPA 822-B-96-001) and *Lake and Reservoir Bioassessment and Biocriteria Technical Guidance Document* (EPA 841-B-98-007).

The full text of the notice is available from MESO (119 KB Adobe™ Acrobat™ file). Further information may also be found at <http://www.epa.gov/ost/biocriteria>.

Federal Register, Volume 66, Number 6, Tuesday, January 9, 2001, p. 1674.



Regulatory Definition Of “Discharge Of Dredged Materials” Revised

On January 24, 2001, the Army Corps of Engineers (ACOE) and the Environmental Protection Agency promulgated a final rule to amend the Clean Water Act (CWA) Section 404 regulations defining the term “discharge of dredged material” (see also *Marine Environmental Update*, Vol. FY99, No. 3). The rule was promulgated to ensure improved environmental protection consistent with Clean Water Act authorities and increase regulatory certainty in a manner in keeping with the recent District of Columbia Circuit court decision. The new rule modifies the definition of “discharge of dredged material” in order to clarify what types of activities the EPA and the ACOE believe are likely to result in discharges that should be regulated.

The ACOE and the EPA regard the use of mechanized earth moving equipment to conduct land clearing, ditching, channelization, in-stream mining, or other earth-moving activity in waters of the U.S. as resulting in a discharge of dredged material, unless project-specific evidence shows that the activity results in only “incidental fallback.” The rule also provides a definition of what constitutes non-regulable incidental fallback that is consistent with the recent District of Columbia Circuit court decision.

The EPA and the ACOE first clarified in August 1993 that Clean Water Act permits were required for any redeposits of dredged material associated with activities in wetlands and other jurisdictional areas. Referred to as the “Tulloch” rule, that definition was challenged by a number of trade associations and overturned in January 1997 by the U.S. District Court for the District of Columbia. Affirmed in June 1998 by the U.S. Court of Appeals, the Court’s decision resulted in leaving certain forms of activities essentially unchecked, if conducted so as to result in only “incidental fallback” (described by the Court as material that falls back to substantially the same place as the initial removal).

Since the 1998 Court decision, there has been confusion as to what activities are likely to result in discharges regulated under the Clean Water Act. This final rule seeks to clarify the scope of activities that typically produce discharges subject to environmental review under the Clean Water Act. The





SPAWAR
Systems Center
San Diego

effective date of the final rule, initially set for February 16, 2001, has been reset to April 17, 2001. Further information may be found at <http://www.epa.gov/owow/wetlands/dredgedmat/dredmat.html>.

Federal Register, Volume 66, Number 11, Wednesday, January 17, 2001, pp. 4549-4575.

Federal Register, Volume 66, Number 32, Thursday, February 15, 2001, p. 10367.



Supreme Court Ruling Limits CWA Authority Over Isolated Wetlands

On January 9, 2001 a decision was made by the Supreme Court stating that the Clean Water Act (CWA) does not authorize the federal government to regulate the dredging and filling of isolated ponds and wetlands. This ruling came out the *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* court case No. 99-1178. The petitioner, a consortium of suburban Chicago municipalities, had selected an abandoned sand and gravel pit with excavation trenches that had evolved into permanent and seasonal ponds as a solid waste disposal site. At issue was a decision by the Army Corps of Engineers (ACOE) stopping the group of Chicago suburbs from dumping garbage in the old strip mine now inhabited by migratory birds. The strip mine had created numerous ponds, which the ACOE said it controlled under the authority of the CWA, which prohibits dumping into “navigable waters” of the United States.

Because the operation called for filling in some of the ponds, petitioner contacted the Army Corps of Engineers to determine if a landfill permit was required under Section 404(a) of the CWA, which authorizes the ACOE to issue permits allowing the discharge of dredged or fill material into “navigable waters” (see also *Marine Environmental Update*, Vol. FY00, No. 2) The CWA defines “navigable waters” as “the waters of the United States,” 33 USC Section 1362(7), and the ACOE’s regulations define such waters to include intrastate waters, “the use, degradation or destruction of which could affect interstate or foreign commerce,” 33 CFR Section 328.3(a)(3).

In 1986, the ACOE attempted to clarify its jurisdiction, stating, in what has been dubbed the “Migratory Bird Rule,” that Section 404(a) extends to intrastate waters that, *inter alia*, provide habitat for migratory birds (51 FR 41217). Asserting jurisdiction over the instant site pursuant to that Rule, the ACOE refused to issue a Section 404(a) permit. When the petitioner challenged the ACOE’s jurisdiction and the merits of the permit denial, the District Court granted respondents summary judgment on the jurisdictional issue. When the Seventh Circuit held that Congress has authority under the Commerce Clause to regulate intrastate waters, the petitioner abandoned its challenge to the ACOE’s permit decision.

On appeal to the Court of Appeals for the Seventh Circuit, the petitioner renewed its attack on respondents’ use of the “Migratory Bird Rule” to assert jurisdiction over the site. The petitioner argued that respondents had exceeded their statutory authority in interpreting the CWA to cover non-navigable, isolated, intrastate waters based upon the presence of migratory birds, and, in the alternative, that





SPAWAR
Systems Center
San Diego

Congress lacked the power under the Commerce Clause to grant such regulatory jurisdiction. The Court of Appeals began its analysis with the constitutional question, holding that Congress has the authority to regulate such waters based upon “the cumulative impact doctrine, under which a single activity that itself has no discernible effect on interstate commerce may still be regulated if the aggregate effect of that class of activity has a substantial impact on interstate commerce.”

The aggregate effect of the “destruction of the natural habitat of migratory birds” on interstate commerce, the court held, was substantial because each year millions of Americans cross state lines and spend over a billion dollars to observe and hunt migratory birds. The Court of Appeals then turned to the regulatory question. The court held that the CWA reaches as many waters as the Commerce Clause allows and, given its earlier Commerce Clause ruling, it therefore followed that respondents’ “Migratory Bird Rule” was a reasonable interpretation of the Act.

In reversing the Seventh Court of Appeals’ ruling, the Supreme Court affirmed that the word “navigable” in the statute was of “limited effect” and went on to hold that Section 404(a) extended to nonnavigable wetlands adjacent to open waters; however the Supreme Court ruled that it could find nothing approaching a clear statement from Congress that it intended Section 404(a) of the CWA to reach an abandoned sand and gravel pit. The court found that permitting the ACOE to claim federal jurisdiction over ponds and mudflats falling within the Migratory Bird Rule would also result in a significant impingement of the States’ traditional and primary power over land and water use. The Court thus read the statute as written to avoid such significant constitutional and federalism questions and rejected a request for administrative deference.

The effects of this ruling are explained in a memorandum prepared by Jon Kusler, an attorney for the Association of State Wetland Managers. According to Kusler, wetlands regulated under the Clean Water Act would primarily include river fringing wetlands for larger rivers and streams, lake fringing wetlands for larger lakes, and coastal and estuarine fringing wetlands. The types of wetlands that would be excluded from regulation include prairie potholes, wet meadows, fringing wetlands along small, non-navigable rivers and lakes, forested wetlands, playas, vernal pools, flats, bogs and large amounts of Alaskan tundra.

Supreme Court of the United States Court Opinion on Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers et al. *No. 99-1178. January 9, 2001.*

Jon Kusler, Esq., The SWANCC Decision and State Regulation of Wetlands, Association of State and Wetland Managers, February 8, 2001.



President Clinton Issues Executive Order On Migratory Birds

On January 17, 2001, President Clinton issued an Executive Order that requires Federal agencies to avoid or minimize the negative impact of their actions on migratory birds, and to take active steps to protect birds and their habitat. The Executive Order directs each Federal agency taking actions having or likely





SPAWAR
Systems Center
San Diego

to have a negative impact on migratory bird populations to work with the Fish and Wildlife Service (FWS) to develop an agreement to conserve those birds.

The protocols developed by this consultation are intended to guide future agency regulatory actions and policy decisions; renewal of permits, contracts or other agreements; and the creation of or revisions to land management plans. In addition to avoiding or minimizing impacts to migratory bird populations, agencies will be expected to take reasonable steps that include restoring and enhancing habitat, preventing or abating pollution affecting birds, and incorporating migratory bird conservation into agency planning processes whenever possible.

As directed by the Executive Order, within two years each Federal agency taking actions that are having, or likely to have, a measurable negative impact on migratory bird populations must develop and implement a Memorandum of Understanding (MOU) with the FWS for the conservation of migratory bird populations. The Service, in cooperation with these agencies, will develop a schedule for completion of these MOUs within 60 days that gives priority to agencies having the greatest impacts on migratory birds. In addition to requiring consultation with the Service and consideration of migratory bird conservation for agency actions, the Executive Order also:

- Establishes a Council for the Conservation of Migratory Birds to assist agencies in implementing the order. Composed of administrators from the Departments of the Interior, Commerce, Agriculture, Transportation, Defense and the Environmental Protection Agency, the council will also serve as a clearinghouse to share the latest migratory bird information with Federal agencies.
- Directs agencies to ensure that environmental analyses of proposed Federal actions required by the National Environmental Policy Act evaluate the effects of those actions on migratory birds.
- Requires agencies, within the scope of their regular activities, to control the spread and establishment in the wild of exotic animals and plants that may harm migratory birds and their habitat.
- Requires agencies to provide advance notice of any action that may result in the take of migratory birds, or to report annually to the Service on the numbers of each species taken during the conduct of any agency action. Agencies are directed to avoid the take of any species identified by the Service as being of particular concern, and to consult with the Service to set out guidelines for any actions resulting in take.

The complete text of the order is available from MESO (39.2 KB Adobe™ Acrobat™ file).

Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds, January 11, 2001.





SPAWAR
Systems Center
San Diego

FWS Issues Southwestern Arroyo Toad Critical Habitat Final Rule

The Fish and Wildlife Service (FWS) has promulgated the critical habitat final rule for the arroyo toad (*Bufo microscaphus californicus*) pursuant to the Endangered Species Act (see *Marine Environmental Update*, Vol. FY00, No. 3). Approximately 73,780 hectares (182,360 acres) in Monterey, Santa Barbara, Ventura, Los Angeles, San Bernardino, Riverside, Orange, and San Diego Counties, California, were designated as critical habitat. Critical habitat identifies specific areas that are essential to the conservation of a listed species and, with respect to areas within the geographic range occupied by the species, which may require special management considerations or protection. The primary constituent elements for the arroyo toad are those habitat components that are essential for the primary biological needs of foraging, breeding, growth of larvae (tadpoles) and juveniles, intra-specific communication, dispersal, migration, genetic exchange, and sheltering. All areas designated as critical habitat for the arroyo toad contain one or more of the primary constituent elements. Included in these are several areas located on Department of Defense (DOD) lands:



The Southwestern arroyo toad, Bufo microscaphus californicus.

Northern Recovery Unit 1 – San Antonio River, Monterey County:

Unit 1 consists of the San Antonio River and adjacent uplands, from about 3 km (2 mi) upstream of the confluence with Mission Creek downstream to San Antonio Reservoir, a distance of about 27 km (17 mi), and includes portions of Mission Creek and other tributaries. The unit encompasses approximately 2,920 ha (7,220 ac), more than 99 percent of which is on the Fort Hunter Liggett Military Reservation.

Southern Recovery Unit 11 – San Mateo Basin, San Diego and Orange Counties:

Unit 11 includes portions of San Mateo, Christianitos, Talega, Gabino, and La Paz creeks, and adjacent uplands. The unit encompasses approximately 1,820 ha (4,495 ac), of which 54 percent is within portions of the Camp Pendleton Marine Corps Base that are leased to outside parties for other land uses (*i.e.*, San Onofre State Park and agricultural lands) and 43 percent is on private land. Portions of Camp Pendleton outside of the leased lands are excluded.

Southern Recovery Unit 12 – Lower Santa Margarita River, San Diego County:

Unit 12 includes approximately 20 km (12.4 mi) of the Santa Margarita River and adjacent uplands, from the lower end of Temecula Canyon to the boundary of Camp Pendleton (Subunit 12b) and almost 4 km of De Luz Creek from the town of De Luz to the boundary of Camp Pendleton (Subunit 12A). The unit





SPAWAR
Systems Center
San Diego

encompasses approximately 1245 ha (3075 ac), of which 30 percent is within the Fallbrook Naval Weapons Station and 70 percent is on private land. Land within the Camp Pendleton Marine Corps Base is excluded from this unit.

Federal agencies already consult with the FWS on activities in areas currently occupied by the species to ensure that their actions do not jeopardize the continued existence of the species. These actions include, but are not limited to:

- Regulation of activities affecting waters of the United States by the Army Corps under section 404 of the Clean Water Act;
- Regulation of water flows, damming, diversion, and channelization by any Federal agency;
- Road construction and maintenance, right-of-way designation, and regulation of agricultural activities on Federal lands (such as those managed by the FWS, Forest Service, DOD, or Bureau of Land Management);
- Regulation of grazing, mining, and recreation by the Bureau of Land Management, DOD, Army Corps of Engineers, or Forest Service;
- Regulation of airport improvement activities by the Federal Aviation Administration;
- Military training and maneuvers, facilities operations and maintenance on Fort Hunter Liggett and other applicable DOD lands;
- Construction of roads and fences along the international border with Mexico, and associated immigration enforcement activities by the Immigration and Naturalization Service; and
- Funding of activities by the Environmental Protection Agency, Department of Energy, Federal Emergency Management Agency, Federal Highway Administration, or any other Federal agency.

As Marine Corps Base Camp Pendleton, Fallbrook Naval Weapons Reserve, and Fort Hunter Liggett do not currently have an Integrated Natural Resources Management Plan (INRMP) that meet the following criteria, they were not excluded under Section 3(5)(A) of the ESA. The criteria are:

1. A current INRMP must be complete and provide a conservation benefit to the species;
2. The plan must provide assurances that the conservation management strategies will be implemented; and
3. The plan must provide assurances that the conservation management strategies will be effective, by providing for periodic monitoring and revisions as necessary.

The INRMP for Camp Pendleton is expected to be completed by the statutory deadline of November 17, 2001. The complete text of the final rule is available from MESO (756 KB Adobe™ Acrobat™ file). Corrections to the final rule are also available from MESO (267 KB Adobe™ Acrobat™ file).

Federal Register, Volume 66, Number 26, Wednesday, February 7, 2001, pp. 9413-9474.

Federal Register, Volume 66, Number 45, Wednesday, March 07, 2001, pp. 13656-13671.

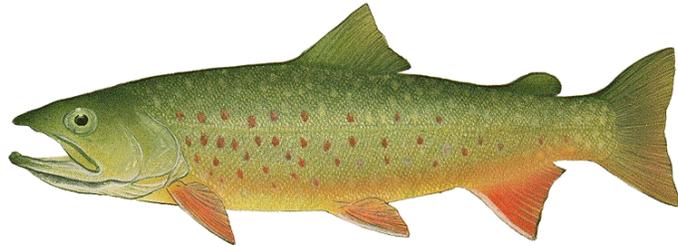




SPAWAR
Systems Center
San Diego

FWS Proposes To List The Dolly Varden As Threatened

On January 9, 2001, the Fish and Wildlife Service (FWS) proposed to list the Dolly Varden (*Salvelinus malma*) as threatened under the "Similarity of Appearance" provisions of the Endangered Species Act. In Washington, the Dolly Varden, an anadromous char and a member of the family Salmonidae, occurs in several river drainages within the Coastal-Puget Sound distinct population segment of the bull trout (*Salvelinus confluentus*), which is listed as a threatened species under the Act (see *Marine Environmental Update*, Vol. FY00, No. 1). Because of the close resemblance in appearance between bull trout and Dolly Varden, law enforcement personnel have substantial difficulty in differentiating between the two species. The determination of threatened status due to similarity of appearance for Dolly Varden will extend to this species the prohibitions against take that apply to bull trout, and will substantially facilitate law enforcement actions to protect bull trout. Actions that result in take of Dolly Varden may include capture as a result of fishing and actions that degrade or destroy habitat.



The Dolly Varden, Salvelinus malma.

Actions that would and would not likely be considered a violation of Section 9 that apply to bull trout were included in the final rule to list the bull trout (64 FR 58910). These also would apply to Dolly Varden in the 34 "native char" subpopulations in the Coastal-Puget Sound area if this rule is made final. Actions that, without a permit or other authorization from the FWS, are likely to be considered a violation of Section 9 include:

1. Take of Dolly Varden without a permit or other incidental take authorization from the FWS. Take includes harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting, or attempting any of these actions, except in accordance with applicable State, National Park Service, and Tribal fish and wildlife conservation laws and regulations;
2. Possessing, selling, delivering, carrying, transporting, or shipping illegally taken Dolly Varden;
3. Unauthorized interstate and foreign commerce (commerce across State and international boundaries) and import/export of Dolly Varden;
4. International introduction of nonnative fish species that compete or hybridize with Dolly Varden;
5. Destruction or alteration of Dolly Varden habitat by dredging, channelization, diversion, instream vehicle operation or rock removal, grading of unimproved roads, stormwater and contaminant runoff from roads, failing road culverts, and road culverts that block fish migration or other activities that result in the destruction or significant degradation of cover, channel stability, substrate composition, turbidity, temperature, and migratory corridors used for foraging, cover, migration, and spawning;
6. Discharges or dumping of toxic chemicals, silt, or other pollutants into waters supporting Dolly Varden that result in death or injury of this species; and



7. Destruction or alteration of riparian or lakeshore habitat and adjoining uplands of waters supporting Dolly Varden by timber harvest, grazing, mining, hydropower development, road construction, or other developmental activities that result in destruction or significant degradation of cover, channel stability, substrate composition, temperature, and migratory corridors used by these species for foraging, cover, migration, and spawning.

The complete text of the proposed rule is available from MESO (138 KB Adobe™ Acrobat™ file).

Federal Register, Volume 66, Number 6, Tuesday, January 9, 2001, pp. 1628-1632.



NMFS Determines ESA Listing Not Warranted For Three Puget Sound Fish Species

The National Marine Fisheries Service (NMFS) has completed an Endangered Species Act (ESA) status review (see *Marine Environmental Update*, Vol. FY99, No. 4) for Pacific cod (*Gadus macrocephalus*), Pacific hake (*Merluccius productus*), and walleye pollock (*Theragra chalcogramma*) populations from the eastern North Pacific Ocean between Puget Sound, Washington, and southeast Alaska.



The Pacific cod, Gadus macrocephalus.

After reviewing available scientific and commercial information, NMFS has determined that none of the petitioned populations in Puget Sound constitute “species” under the ESA. The agency concludes that these populations are part of larger distinct population segments (DPSs) that qualify as species under the ESA but do not warrant listing as threatened or endangered at this time. However, the NMFS is adding the Georgia Basin Pacific hake DPS to the agency’s list of candidate species because of remaining uncertainties about its stock structure and status.

After reviewing the best available scientific and commercial information for these three gadids, the NMFS concluded that none of the petitioned populations in Puget Sound by themselves constitute “species” under the ESA. The agency determines that these populations represent the southernmost stocks of larger DPSs that qualify as species under the ESA: (1) a Georgia Basin Pacific hake DPS; (2) a Pacific cod DPS that includes stocks at least as far north as Dixon Entrance; and (3) a Lower Boreal Eastern Pacific walleye pollock DPS. After assessing the risk of extinction faced by each DPS, the NMFS further determines that none of the DPSs warrant listing as threatened or endangered at this time.

The NMFS acknowledges that the DPS and risk assessments relied heavily upon the professional judgment of agency scientists since robust data sets were generally not available for any of the species. In





SPAWAR
Systems Center
San Diego

particular, the agency believes that remaining uncertainties regarding the status and relationship of hake stocks in the Georgia Basin DPS warrant placing this DPS on the agency's list of candidate species. In the event that new information becomes available to resolve these uncertainties and as agency resources permit, the NMFS will conduct a thorough re-evaluation of this DPS. This rule became effective November 24, 2000.

Federal Register, Volume 65, Number 227, Friday, November 24, 2000; pp. 70514-70521.



Agreement Regarding Enhanced Coordination Under CWA And ESA Issued

On February 22, 2001, a Memorandum of Agreement (MOA) designed to enhance coordination under the Clean Water Act and Endangered Species Act was issued. The MOA seeks to enhance the efficiency and effectiveness of consultations on these actions in the future by providing guidance to regional and field offices and establishing an elevation process to quickly resolve issues that may arise. The MOA also seeks to enhance coordination at the national level by establishing a joint national research plan that will prioritize research on the effects of water pollution on endangered and threatened species.

The following components from the draft January 1999 MOA have been retained: (1) Interagency coordination and elevation; (2) national level activities; (3) oversight of State and Tribal water quality standards; (4) State and Tribal NPDES permitting programs.

1. Interagency Coordination and Elevation:

The MOA directs staff to establish local/regional review teams that will meet periodically to identify upcoming priorities and workload requirements and generally ensure close coordination on the full range of activities involving water quality and endangered/threatened species protection. These teams will also develop procedures for working with States and Tribes on these matters.

Added to the MOA a directive that the EPA and regional senior managers (*e.g.*, Regional Administrator or Division Director from the EPA, Regional Director or Assistant Regional Director from the FWS, Assistant Regional Administrator for NMFS) meet at least annually to review on a programmatic basis ongoing work between our agencies. These meetings will focus on establishing overall priorities, assessing resource needs and providing direction to mid-level managers and staff.

The draft MOA also included a procedure for elevating issues that may arise among regional and field offices. By eliminating a step in the elevation process, the final MOA will also help speed resolution of issues should elevation be necessary.





SPAWAR
Systems Center
San Diego

2. National Level Activities:

Water Quality Standards Rulemaking: The MOA states that the EPA would propose to amend the EPA's water quality standards regulations to provide that water quality shall be not likely to jeopardize the continued existence of a listed species. Such a rule would essentially codify existing protection for endangered and threatened species under the CWA since water quality that is so poor it would likely jeopardize a listed species or destroy or adversely modify critical habitat fails to meet the fundamental requirements of the CWA.

Development of New Water Quality Criteria Methodological Guidelines: The final MOA provides that the Services will participate in the EPA's development of new methodological guidelines for the development of aquatic life criteria under Section 304(a) of the CWA.

National Consultations: The provision for national consultations that the EPA and the Services intended to undertake regarding the EPA's water quality criteria for the protection of aquatic life that the EPA has published under Section 304(a) of the CWA, and on procedures in the MOA to ensure that State/Tribal NPDES permits will protect listed species have been deleted. The final MOA states that the consultation will be completed in an expedited manner, rather than the less flexible strict timetable of eighteen months contained in the draft MOA.

Joint National Research Plan: The final MOA retains the draft MOA's provisions for the Agencies to establish a joint national research and data gathering plan for prioritizing and funding research on the effect of water pollution on listed species.

3. Oversight of State and Tribal Water Quality Standards:

The MOA retains the draft MOA's provisions for the requirement of a Section 7 (a)(2) consultation for any newly approved or revised standards that may have an effect on a listed species or designated critical habitat. The EPA and the Services have agreed that where information indicates an existing standard is not adequate to avoid jeopardizing listed species, or destroying or adversely modifying designated critical habitat, the EPA will work with the State/Tribe to obtain revisions in the standard or, if necessary, revise the standards through the promulgation of federal water quality standards under Section 303(c)(4)(B) of the CWA.

4. State/Tribal Permitting Programs:

The final MOA addresses the procedures that we will follow in overseeing the operation of State/Tribal NPDES permits to ensure that listed species and critical habitats are protected. Rather, the coordination procedures in the MOA simply outline the interaction that we envision between the EPA, the Services and the State/Tribe should a particular permit raise issues of concern for listed species. The MOA also makes clear that EPA's oversight of State/Tribal permits will continue to be governed by the EPA's CWA authorities. The MOA does not change the criteria under which the EPA currently exercises that authority – *i.e.*, whether a permit meets applicable CWA requirements – but simply ensures that the EPA





SPAWAR
Systems Center
San Diego

has the full benefit of the Services' views on potential impacts to Federally listed species and designated critical habitats in determining whether CWA requirements are met.

The MOA itself does not alter, expand, or substitute for those provisions or regulations, nor is it a regulation itself. Thus, it does not impose legally binding requirements on the EPA, States, Tribes, or the regulated community. Rather, the MOA contains internal procedural guidance to the staff of both agencies and to assist in carrying out existing legal requirements. Based on experience in implementing the MOA, the MOA may change in the future.

Federal Register, Volume 66, Number 36, Thursday, February 22, 2001, pp. 11202-11217.



USGS Study Indicates Airborne Nitrogen Contributes Pollution To U.S. Estuaries

Nitrogen in rain and airborne particles contributes as much as 15 to 35 percent of the nitrogen in the coastal streams that flow into U.S. estuaries, according to a new study from the U.S. Geological Survey (USGS), the National Oceanographic and Atmospheric Administration (NOAA), and the Blackland Research Center (BRC) at Texas A&M University.

The study, published by the American Geophysical Union (AGU) sheds new light on the role of the atmosphere as a source of pollutants to downstream estuaries. Nutrients, especially nitrogen, are needed to sustain the productivity of estuaries, but too much nitrogen causes the excessive growth of algae, bacteria and microscopic water animals known as zooplankton, depriving fish and plants of much-needed oxygen. A recent assessment by NOAA identified such problems in many U.S. estuaries especially in those along the Gulf of Mexico and Mid-Atlantic coasts.

Until now, scientists have had incomplete information on the sources of nitrogen entering these estuaries. Beyond nitrogen contributions from agricultural and wastewater sources, it was unclear how much nitrogen came from other sources like cars, trucks and power plants because no comprehensive national studies had been done to quantify those contributions. Moreover, little was known about the amounts of airborne nitrogen that make their way to coastal streams and estuaries once the nitrogen is deposited in watersheds.

This national study of the watersheds that drain to 40 major U.S. estuaries reported the highest atmospheric contributions—a quarter to about a third of the nitrogen in streams—along the northeastern and Mid-Atlantic coasts, including streams flowing to the Long Island Sound and Chesapeake Bay. Atmospheric contributions were also nearly this large in many streams along the Louisiana Gulf coast, which corresponded to the locally high levels of atmospheric deposition of nitrogen in this region.

A USGS study published earlier this year reported that the atmosphere accounts for a similar percentage of the nitrogen (nearly 20 percent) in the waters of the Mississippi River that flow into the Gulf of





SPAWAR
Systems Center
San Diego

Mexico. The new national study also confirmed that estuaries receive much of their nitrogen from non-atmospheric sources, including farms, pastureland, and wastewater treatment plants. Agricultural runoff contributed the largest share, more than one-third in most of the coastal watersheds studied. The contributions from municipal and industrial wastewater are similar to those from the atmosphere in many watersheds, but represent the largest share of nitrogen – more than a third – in several densely populated watersheds along the North Atlantic and Gulf coasts.

The results of the joint USGS/NOAA/BRC study entitled “Atmospheric Nitrogen Flux From the Watersheds of Major Estuaries of the United States: An Application of the SPARROW Watershed Model,” was part of a larger collaborative effort convened by NOAA, including scientists from more than 15 federal, state, and academic institutions, to quantify atmospheric nitrogen inputs to the watersheds and water surfaces of U.S. estuaries. The results of the entire investigation appear in *Nitrogen Loading in Coastal Water Bodies: An Atmospheric Perspective*, American Geophysical Union Monograph 57, Richard Valigura, Richard Alexander, Mark Castro, Tilden Meyers, Hans Paerl, Paul Stacey, and R. Eugene Turner (eds.).

http://www.usgs.gov/public/press/public_affairs/press_releases/pr1361m.html

http://water.usgs.gov/nawqa/sparrow/coast/agu_sparrow.html



Southern CA Bight Regional Environmental Survey Reports

Background

The Southern California Bight (SCB) is an important and unique ecological resource. The diverse habitats present in the SCB allow for the coexistence of a broad spectrum of species, including more than 500 species of fish and 1,500 species of invertebrates. The SCB is also one of the most densely populated coastal regions in the country, which creates stress upon the marine environment through activities such as contaminant discharge from effluents and nonpoint sources, fishing, and habitat modification. The 1998 SCB [Regional Monitoring Project](#) (Bight '98) is part of an effort to provide an integrated assessment of the SCB through cooperative regional-scale monitoring (see *Marine Environmental Update*, Vol. FY98, No. 4).

Sediment Toxicity

Sediment toxicity measurements were conducted during the 1998 Southern California Bight Regional Monitoring Project (Bight '98) in order to accomplish three goals: (1) to determine the percent of area in the SCB that contains sediments toxic to marine organisms; (2) to compare the responses among sediment toxicity test methods; and (3) to evaluate the relationship between sediment toxicity and chemical contamination or changes in benthic communities.





SPAWAR
Systems Center
San Diego

Sediment from 303 sites on the continental shelf between Point Conception, California, and the United States-Mexico international border were sampled between July 13 and September 16, 1998. Sites were selected using a stratified random design. Five of the strata were located offshore (river mouths, large publicly owned treatment works [POTW] discharge areas, small POTW discharge areas, remaining shallow areas [5-30 m], and remaining mid-depth areas [30-120 m]). Three additional strata were located within bays and harbors, which included marinas, ports/industrial areas, and other harbor areas (less-developed areas that did not serve port/industrial or marina functions).

Subsets of the sediment samples were evaluated for toxicity using up to four methods. Bulk sediment from 241 stations was measured for toxicity using a 10-day amphipod (*Eohaustorius estuarius*) survival test. Sediment extracts from 268 stations were evaluated for toxicity using the P450 human reporter gene system (HRGS) test, which measures the concentration of organic compounds that induce the cytochrome P450 enzyme system (e.g., PAHs, dioxins, furans, and some PCBs). Elutriates from 173 samples were tested for sublethal toxicity (bioluminescence inhibition) to phytoplankton (*Gonyaulax polyedra*) using the QwikSed test. Interstitial water from 88 samples was analyzed for sublethal toxicity (bioluminescence inhibition) to the marine bacterium, *Vibrio fischeri* (Microtox™ test).

The amphipod test detected toxicity in each of the seven strata. Amphipod toxicity was most prevalent in bay and harbor areas, where 13-37% of the area (depending upon the stratum) was toxic. Toxicity was least prevalent in POTW outfall areas (6% of the area) and the shallow portion of the coastal shelf (3% of the area). Each of the other tests also detected sediment toxicity in selected strata. The QwikSed test was the most sensitive of the toxicity indicators. Toxicity using QwikSed was detected in elutriate samples from bays and harbors and also from POTW outfall areas. HRGS gene activity was induced by sediment extracts from 30 stations, with most of the induction produced by samples from port/industrial or marina areas.

The three test responses were combined into an integrated assessment of sediment quality using a weight of evidence approach that incorporated the relative ecological relevance and severity of the test responses. The integrated assessment identified 19% (644 km²) of the SCB as areas of potential or high concern. Areas of high concern (2.7%) were almost exclusively located within harbors and bays, while areas of potential concern were present in all strata tested.

The Bight '98 amphipod toxicity results for bay and harbor strata (13-37% of the area affected) fell within the general range reported in previous local studies by the National Oceanic and Atmospheric Administration and the State Water Resources Control Board (14-66% of the area affected). The persistent occurrence of toxicity in port and marina areas indicates that sediment quality in many of these areas is not improving. These locations are good candidates for additional research designed to identify the cause of toxicity.

Temporal differences in toxicity were apparent in two areas of the SCB. Amphipod toxicity was less prevalent in San Diego Bay compared to samples analyzed in 1992-94 and amphipod toxicity was greater in mid-depth areas compared to samples analyzed in 1994. The cause of these temporal differences may be related to several factors, including the use of different amphipod test species and variations in





SPAWAR
Systems Center
San Diego

sediment contaminant concentrations. Analysis of sediment chemistry data (not yet available) is needed to help determine the cause of these trends.

Sediment toxicity is just one of three types of information needed to assess coastal sediment quality. Measures of sediment contamination and biological response (e.g., benthic community impacts) are also needed to establish whether the toxicity patterns are ecologically significant and associated with anthropogenic inputs.

The complete text of *Southern California Bight 1998 Regional Monitoring Program: IV. Sediment Toxicity* is available at <ftp://ftp.sccwrp.org/pub/download/PDFs/bight98sedtoxprt.pdf>.

Storm Event Shoreline Microbiology

The coastal waters of the Southern California Bight (SCB) are the most intensively monitored in the United States, with as many bacterial samples collected in this area as the rest of the country combined. Despite the large sampling effort conducted in the SCB, the resulting data are difficult to integrate into a regional assessment of bacteriological water quality because most sampling effort is allocated to public-interest areas, such as well-used beaches or sites of concern near sewage and storm drain infrastructure. Additionally, these data are collected by 22 different organizations that use different laboratory methods and maintain independent data management systems. To address these limitations, all of the organizations that conduct routine monitoring in the SCB pooled their efforts to conduct an integrated survey of overall microbiological water quality along the southern California shoreline in August of 1998.

To address the historical bias toward known or suspected “problem areas,” the Bight '98 Summer Shoreline Microbiology Study used a stratified random sampling design. A follow-on Winter Study conducted in February and March of 1999 similarly measured bight-wide bacterial water quality during the traditionally wettest months in southern California. While the winter survey successfully presented a region-wide, integrated picture of shoreline water quality, the absence of significant rain events during the sampling period thwarted a primary objective of the survey, to characterize water quality during wet weather.

The organizations that participated in the prior surveys conducted a third survey in the late winter of 2000 to capture beach water quality data during a storm event. The goals of the Storm Event study were to:

- Determine the percentage of shoreline miles along the SCB that exceeded bacterial standards set forth in Assembly Bill 411 during a storm event.
- Compare the responses among the four bacterial indicator thresholds used to assess beach water quality in California.
- Compare the analytical results from standard methods with those of the new chromogenic substrate method.





SPAWAR
Systems Center
San Diego

Samples were collected from 251 sites between Point Conception, California, and Punta Banda, Mexico. These were the same sites used in the two previous surveys and were selected using a stratified random design, with sandy beaches, rocky shoreline, and areas adjacent to freshwater outlets as the strata. Sampling took place on February 20, 2000, approximately 36 hours after a rainstorm that produced at least one inch of rain throughout the SCB. Samples were analyzed for total coliforms, fecal coliforms (or *E. coli*), and enterococci using standard methods.

Fifty-eight percent of the shoreline waters were found to exceed water quality standards during this study, which was almost 10 times that found to exceed water quality standards during the dry summer period. Moreover, the magnitude of the exceedances was much greater during wet weather conditions. In the summer, more than two-thirds of the water quality exceedances were attributable to a single bacterial indicator, and most of those exceedances were barely above the indicator threshold. During wet weather conditions, two-thirds of the exceedances were for two multiple indicators, where at least one indicator was measured at a level that was twice the allowable standard. Coastal waters in areas close to freshwater outlets had the worst water quality during all three studies. During dry-weather conditions, the water adjacent to 60% of the freshwater outlets had poor quality; this number rose to 90% following the storm.

A much higher degree of consistency was found among the threshold exceedance by the bacterial indicators following a storm event than during dry-weather studies. During the dry weather studies, almost 80% of water quality threshold exceedances involved only one indicator, whereas following the storm nearly half of the threshold exceedances involved all of the indicators. In both wet weather and dry weather conditions, the number of exceedances attributable to enterococci was much higher than either total coliforms or fecal coliforms. The concentrations of all three bacterial indicators (total coliforms, fecal coliforms, and enterococci) correlated strongly, suggesting that the different levels of sensitivity among indicators reflect their different thresholds, with the enterococci threshold being the most conservative.

The complete text of *Southern California Bight Regional Monitoring Program: Storm Event Shoreline Microbiology* is available at <ftp://ftp.sccwrp.org/pub/download/PDFs/stormevent2000.pdf>.



EPA Coastal Research and Monitoring Strategy Available

The Coastal Research and Monitoring Strategy employs a monitoring-research-assessment- management cycle that integrates coastal monitoring and research objectives to enable cross-cutting and comprehensive assessments of the Nation 's coastal resources. The objectives of the Strategy are to:

- Document the status and assess trends in environmental conditions at the scales necessary for scientific investigation and policy development;
- Evaluate the causes and consequences of changes in environmental status and trends;
- Assess environmental, economic, and sociological impacts of alternative policies for dealing with these changes; and





SPAWAR
Systems Center
San Diego

- Implement programs and policies to correct observed environmental problems.

The key attributes of the proposed Coastal Research and Monitoring Strategy include co-funding by Federal and State programs; nested designs to allow State-specific issues to be addressed in a national context; collective reporting; and cross-system comparisons. The strategy for a national coastal monitoring design is based on the three-tiered approach developed by the Environmental Protection Agency and a similar version was recommended by National Science and Technology Council (1997), and has the following components:

- Characterization of Problem (Tier 1) – Broad-scale ecological response properties as a base determined by survey, automated collection, and/or remote sensing;
- Diagnosis of Causes (Tier 2) – Issue- or resource-specific surveys and observations concentrating on cause-effect interactions; and
- Diagnosis of Interaction and Forecasting (Tier 3) – Intensive monitoring and research index sites with higher spatial and temporal resolution to determine specific mechanisms of interaction needed to build cause-effect models.

Data and information generated at each tier help interpretation of results from the other tiers. For example, Tier 1 (Characterization) data provide geographic context for data collected at Tiers 2 and 3 (*e.g.*, how widespread is the problem and how much of the nation's resources are affected by its occurrence). Likewise, Tiers 2 (Diagnosis of Causes) and 3 (Diagnosis of Interactions and Forecasting) aid in understanding how serious a particular relationship or issue is.

The focus of the Strategy and conceptual framework is monitoring in the coastal zone. However, important research activities must occur concurrently at each level of the monitoring framework. Research plays a vital role in increasing our ability to interpret data from our monitoring programs and enhance our monitoring tools and methods. Research is the foundation underlying all tiers of the monitoring framework, and is critical to achieving the objectives of integrated assessments.

The document also suggests issues that should be considered during implementation. Further information may be found at <http://cleanwater.gov/coastalresearch/H2Ofin.pdf>.



EPA and NOAA To Fully Approve VA Coastal NPS Pollution Control Program

On February 22, 2001, The Environmental Protection Agency and the National Oceanic and Atmospheric Administration gave notice of their intent to fully approve the Nonpoint Pollution Control Program for Virginia. The Commonwealth of Virginia's draft proposal has been approved on the following conditions:

1. Within two years, Virginia will include management measures for irrigation water. Within one year, Virginia will develop a strategy to ensure implementation of the agricultural management





SPAWAR
Systems Center
San Diego

measures on those applicable lands which fall within the two exceptions [(1) areas within Tidewater, Virginia that are not included in Chesapeake Bay Preservation Areas; and (2) cases within the Chesapeake Bay Preservation Area where an agricultural producer is not required to implement an approved soil and water quality conservation plan.]

2. Within three years, Virginia will demonstrate its ability to achieve implementation of the forestry management measures using the approach described in its coastal nonpoint program. Within one year, identify measurable results to be achieved during this three-year time frame.
3. Within three years, Virginia will include management measures and enforceable policies and mechanisms to reduce total suspended solids outside Chesapeake Bay Preservation Areas but within the management area.
4. Within three years, Virginia will include management measures for existing development by identifying priority watershed pollutant reduction opportunities and a schedule for implementing appropriate controls.
5. Within three years, Virginia will include management measures for construction site chemical control.
6. Within three years, Virginia will include management measures for adequate separation distance between new On-Site Disposal Systems (OSDS) and ground water closely hydrologically connected to surface water and limiting nitrogen loadings from new and operating OSDS near nitrogen limited surface waters.
7. Within three years, Virginia will include management measures for road, highway and bridge runoff systems and enforceable policies and mechanisms for roads that are not within Chesapeake Bay Preservation Areas.
8. Within three years, Virginia will include management measures for stormwater runoff, fish waste, and boat operation.
9. Within three years, Virginia will include management measures for surface water quality and instream and riparian habitat (through operation and maintenance of existing modified channels), the operation of dams, chemical control at dams, and stream bank or shoreline erosion. Within one year, Virginia will develop a strategy to ensure implementation of the management measures to protect surface water quality and instream and riparian habitat from the effects of dams.
10. Within two years, Virginia will include technical assistance activities to address marina development and operation.
11. Within one year, Virginia will include a plan that enables Virginia to assess over time the extent to which implementation of management measures is reducing pollution loads and improving water quality.

The draft decision is being made available for a 30-day comment period. If no comments are made, the draft decision will be approved; if comments are made, NOAA and the EPA will consider whether or not the comments are significant enough to affect the decision to fully approve the program.

For further information, contact Elisabeth Morgan, Coastal Programs Division (N/ORM3), Office of Ocean and Coastal Resource Management, NOS, NOAA, 1305 East-West Highway, Silver Spring,





SPAWAR
Systems Center
San Diego

Maryland, 20910; phone: (301) 713-3155 ext. 166; e-mail elisabeth.morgan@noaa.gov. Further information may also be found at <http://www.ocrm.nos.noaa.gov/czm/6217>.

Federal Register, Volume 66, Number 36, Thursday, February 22, 2001, pp. 11164-11165.



Oil Spill Detection System Receives Excellence In Technology Transfer Award

The Federal Laboratory Consortium (FLC) for Technology Transfer recognized SSC-SD's automated oil spill detection system (see *Marine Environmental Bulletin*, Vol. FY98, No. 3) with its 2001 award for Excellence in Technology Transfer. Named in the award are John Andrews, Greg Anderson, and patent attorney Mike Kagan. The award will be presented at a ceremony in Burlington, Vermont on May 1, 2001.

During the month of February, ESTCP-funded oil spill detection systems were installed at Langley Air Force Base, Virginia and at Pearl Harbor, Hawaii. This brings the number of DOD facilities using the system to four, including Puget Sound Naval Shipyard and Naval Station Norfolk.

For further information contact John Andrews at the [Chemical Sensor Laboratory](#), Space and Naval Warfare Systems Center, San Diego, CA 92152; (619) 553-2769, DSN 553-2769.



Evaluation of Sediment Transport Data for Clean Sediment TMDLs

On February 27, 2001, the National Sedimentation Laboratory of the U.S. Department of Agriculture's Agricultural Research Service, with funding provided by Environmental Protection Agency HQ Watershed Branch, issued a report providing a methodology to evaluate whether a stream or river is impaired due to sediment. While this methodology shows promise in the coastal plains province of the country, it needs to be further developed and tested in other provinces of the country to establish its generality.

Excessive erosion, transport, and deposition of sediment in surface waters are a major problem in the United States. A national strategy is needed to develop scientifically defensible procedures to facilitate the development of Total Daily Maximum Loads (TMDLs) for clean sediment in streams and rivers of the United States. In the first part of this study, data sets that contain sediment transport and flow data were identified from non-USGS sites. In the second part of this study, an existing method for evaluating impairment of streams by sediment (Rosgen-Troendle technique) was evaluated, problems were identified and a revised technique was developed. A search of existing data sets yielded 108 sites in the





SPAWAR
Systems Center
San Diego

United States with detailed sediment and flow data suitable for testing of procedures for the development of clean sediment TMDLs. The data from these streams was from 11 different states and nine different physiographic provinces of the country and would serve as a valuable resource for further development of procedures to detect impairment due to clean sediment.

In this study a revised methodology was developed. The methodology is as follows: 1) Classify the stream according to the Rosgen-Troendle technique; 2) Determine the stage of channel evolution and rank the relative degree of channel instability using a channel-stability index; 3) Determine index of biologic integrity or other means of evaluating ecological health; 4) Develop sediment-transport versus discharge (ratings) and magnitude-duration relations for sediment transport and excess shear stress; and 5) Compare slope of sediment-transport rating, total sediment load at the effective (1.5-year) discharge, with physical and biologic indices to determine possible “departure” from the reference condition and impairment to the designated use of the waterbody.

The complete text of *Evaluation of Sediment Transport Data for Clean Sediment TMDLs* is available at http://www.sedlab.olemiss.edu/cwp_unit/NSLReport17.html.



EPA Opens National Compliance Assistance Clearinghouse Web Site

The EPA, States and other key stakeholders have jointly developed a National Compliance Assistance Clearinghouse to provide regulated industries essential compliance assistance information to meet environmental requirements. The National Compliance Assistance Clearinghouse is intended to aid the day-to-day function of those who help the industry comply with EPA or State environmental regulations.

The clearinghouse web site provides a single repository of compliance assistance materials. It has unique features that solicit participation from the user community to quickly locate compliance assistance information that is housed on multiple web sites. It contains a Provider’s Directory to help users find experts quickly; it provides users easy access to many compliance assistance tools and web links; and it allows the users to communicate with each other easily through the communication forum. It also allows users to add links from their own web sites, select the information they need from the site and apply it to their own web sites, and tell the EPA about their compliance needs.

Initially, the clearinghouse will focus on providing links to the EPA and state web sites. The EPA will continue to expand its content by adding information from industry sources, private organizations and other assistance providers after the opening. The site may be found at www.epa.gov/clearinghouse.

EPA Headquarters Press Release, Thursday, December 7, 2000.





SPAWAR
Systems Center
San Diego

Coming Next Issue: Screening-Level Determination of PCBs in Seawater Matrices Using Enzyme-linked Immunosorbent Assay (ELISA) Techniques

Enzyme-linked Immunosorbent Assay (ELISA) techniques are analytical techniques developed directly from an immunochemical response to a specific analyte. They are particularly useful when screening-level quantitation is the analytical goal, *i.e.*, a concentration determination above or below a threshold limit of detection. This type of result allows the environmental site manager or analyst to determine where to focus field-sampling efforts.

Although ELISAs are generally easier to perform in the laboratory, it is possible to perform ELISAs in the field with minimal investment, given an appropriate level of laboratory training. Commercial immunoassay kits are available for freshwater and soils which are relatively straightforward to use, and can be used for sediments with only slight modifications. However, a much different approach is required when the matrix contains seawater in the presence of inorganic and organic particulates.

The use of freshwater immunoassays has been recently evaluated and new protocols developed/validated for quantitation of PCBs in seawater. Descriptions and observations related to seawater-specific effects on immunoassay chemistries will be the subject of future reports. For further information contact Dr. Robert George at the [Environmental Materials and Coatings Laboratory](#), Space and Naval Warfare Systems Center, Environmental Chemistry & Biotechnology – D361, San Diego, CA 92152; (619) 553-2776, DSN 553-2776.



The *Marine Environmental Update* is produced quarterly as an information service by the Marine Environmental Support Office (MESO) to inform the Navy environmental community about issues that may influence how the Navy conducts its operations. The contents of this document are the responsibility of the Marine Environmental Support Office and do not represent the views of the United States Navy. References to brand names and trademarks in this document are for information purposes only and do not constitute an endorsement by the United States Navy. All trademarks are the property of their respective holders. Approved for public release; distribution is unlimited.

The Marine Environmental Support Office may be reached at:

MARINE ENVIRON SUPPORT OFC
SPAWARSYSNEN D3621
53475 STROTHER ROAD
SAN DIEGO CA 92152-6326

Voice: 619.553.5330/5331; DSN 553.5330/5331
Facsimile: 619.553.5404; DSN 553.5404

E-mail: meso@spawar.navy.mil
PLAD: SPAWARSYSNEN SAN DIEGO CA

WWW: meso.spawar.navy.mil

